Ohio Environmental Protection Agency
Division of Surface Water

# Biosolids Agronomic Rate Calculation Worksheet

## General Information

| | | |
|---|---|---|
| Ohio EPA # | 21-00216 | |
| Field ID # | DES-01-10 | |
| Generator Name | Emerald BioEnergy | |

## Biosolids Data and Beneficial Use Methods

| | | |
|---|---|---|
| Ammonia Nitrogen | 47300.00 | mg/kg |
| Total Kjeldahl Nitrogen | 85500.00 | mg/kg |
| Total Phosphorus | 28300.00 | mg/kg |
| Organic Nitrogen | 76.40 | lbs/ton |
| Available Nitrogen | 117.52 | lbs/ton |
| Phosphate ($P_2O_5$) | 64.81 | lbs/ton |
| Will Immediate Incorporation / Injection be performed? | Yes | |

## Beneficial Use Site Information

| | | | | |
|---|---|---|---|---|
| Soil Phosphorus | 6.20 | ppm | Mehlich 3 | |
| | 5.46 | ppm | | |
| Please note that the agronomic rates and phosphorus index have been calculated within the *Calculated Agronomic Rates* section; however, based upon the above provided *Soil Phosphorus* result, you must utilize the most limiting factor or the *Phosphorus Index* : | The nitrogen agronomic rate, a phosphate beneficial use rate of<br>phosphate beneficial use rate of 256-500 lbs/acre if injected/inco<br>24 hours of beneficial use or if there is >50% ground cover, or the Ph | | | |
| County | Delaware | | | |
| Soil Type | Cardington silt loam, 2 to 6 percent slopes | | | |
| Hydrologic Soil Group | C | | | |

| **Year 1** | Crop 1 | Crop 2 | Crop 3 | Crop 4 |
|---|---|---|---|---|
| Crop Type(s) | Corn (Grain) | | | |

| | | | | |
|---|---|---|---|---|
| Expected Crop Yield(s)(bu/acre or tons/acre) | 190 | | | |
| **Year 2** | Crop 1 | Crop 2 | Crop 3 | Crop 4 |
| Crop Type(s) | Soybean | | | |
| Expected Crop Yield(s)(bu/acre or tons/acre) | 60 | | | |
| **Year 3** | Crop 1 | Crop 2 | Crop 3 | Crop 4 |
| Crop Type(s) | | | | |
| Expected Crop Yield(s)(bu/acre or tons/acre) | | | | |
| **Year 4** | Crop 1 | Crop 2 | Crop 3 | Crop 4 |
| Crop Type(s) | | | | |
| Expected Crop Yield(s)(bu/acre or tons/acre) | | | | |
| **Year 5** | Crop 1 | Crop 2 | Crop 3 | Crop 4 |
| Crop Type(s) | | | | |
| Expected Crop Yield(s)(bu/acre or tons/acre) | | | | |
| Crop Nitrogen Requirements (Year 1) | 225 | lbs/acre | | |
| Existing Available Nitrogen | 0 | lbs/acre | | |
| Non-Biosolids Nitrogen Application | 0 | lbs/acre | | |
| Phosphate ($P_2O_5$) Fertilizer Application | 0 | lbs/acre | | |
| Non-Biosolids Organic Phosphate ($P_2O_5$) Application | 0 | lbs/acre | | |
| Biosolids Phosphate ($P_2O_5$) Beneficial Use | 124.08 | lbs/acre | | |
| Total Organic Phosphate ($P_2O_5$) Fertilizer Application | 124.08 | lbs/acre | | |

Phosphorus Index

| | | |
|---|---|---|
| Soil Loss | 5 | tons/acre/year |
| Connectivity to "waters of the State" | Concentrated flow does not leave the beneficial use site and is not adjacent to an intermittent or perenial stream. | |
| Runoff Class - Slope Range | 1-3% | |
| Soil Phosphorus | | |
| Application - Phosphate ($P_2O_5$) Fertilizer | | |
| Method - Phosphate ($P_2O_5$) Fertilizer | Immediate incorporation or applied on ≥80% cover. | |
| Application - Organic Phosphate ($P_2O_5$) Fertilizer | | |
| Method - Organic Phosphate ($P_2O_5$) Fertilizer | Immediate incorporation or applied on ≥80% cover. | |

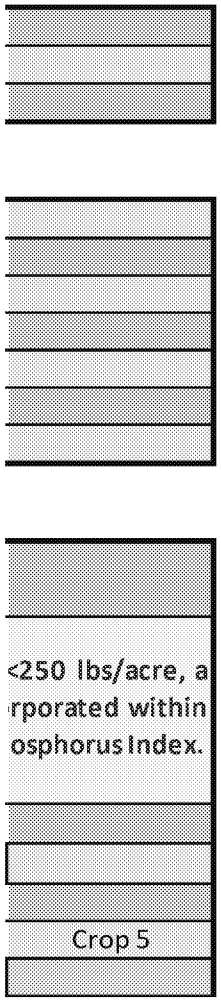
| | | |
|---|---|---|
| [illegible] | [illegible] | |
| Does runoff flow through a filter strip designed per USDA Ohio-NRCS Field Office Technical Guide Standard 393? | No | |
| **Total Phosphorus Index** | | |

Calculated Agronomic Rates

| | | |
|---|---|---|
| Nitrogen Agronomic Rate | 1.91 | dry tons/acre |
| i. Calculated Agronomic Rate | 1.91 | dry tons/acre |
| Single Year Phosphate Agronomic Rate | 1.17 | dry tons/acre |
| Multi-Year Phosphate Agronomic Rate | 1.91 | dry tons/acre |
| Phosphorus Index | Medium potential for phosphorus runoff. Use the Nitrogen Agronomi | |

Beneficial Use Site Records

| | | | | | |
|---|---|---|---|---|---|
| Quantity of Biosolids Beneficially Used | 65.7 | dry tons | | | |
| Phosphate ($P_2O_5$) Beneficially Used Per Acre | 242.82 | lbs/acre | | | |
| Acreage | 35.07 | | | | |
| Date Biosolids Delivered to Beneficial Use Site | 8/2/2019 | | | | |
| Dates of Beneficial Use | 8/2/2019 | to | 8/7/2019 | | |
| Total Days Biosolids Stored at Beneficial Use Site | 0.00 | Days | | | |
| Date Signage Posted at Beneficial Use Site | 6/21/2019 | | ☐ Yes | Is a permanent si | |
| Date Signage Removed from Beneficial Use Site | N/A | | ☑ No | beneficial | |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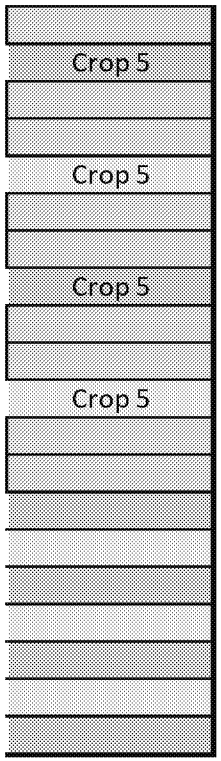
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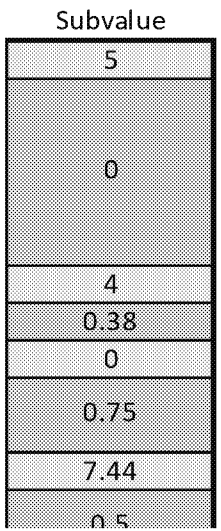
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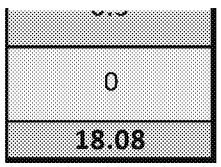
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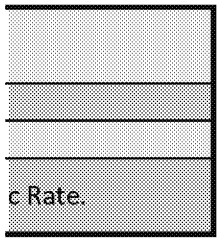
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